AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1 - 34. (Canceled)

35. (Currently amended) A method for translating messages in a multi-protocol environment, the method comprising:

receiving, by a gateway onboard a machine, a first message from a module off-board the machine in a first data link protocol used by the off-board module, the message including:

a first parameter value in a format consistent with the first data link protocol; and

a parameter identifier corresponding to the first parameter value;

extracting the parameter identifier and storing the first parameter value, by the gateway;

scaling the first parameter value to a second parameter value consistent with a second data link protocol using a scale factor associated with the second data link protocol, the second data link protocol used by a destination module onboard the machine; and

transmitting a second message containing the second parameter value [[via]] in the second data link protocol to the onboard destination module.

36. (Currently amended) A method for translating messages in a multi-protocol environment, the method comprising:

receiving, by a gateway onboard a machine, a first message from a module onboard the machine in a first data link protocol used by the onboard module, the message including a first parameter identifier, and a second message from a module off-board the machine in a second data link protocol used by the off-board module, the message including a second parameter identifier;

matching, by the gateway, the first parameter identifier and the second parameter identifier with [[a]] corresponding parameter identifier identifiers included in a translation table associated with the gateway[[,]];

scaling [[a]] the first parameter value contained in the first message to a second parameter value consistent with [[a]] the second data link protocol using a scale factor associated with the matched first parameter identifier, and the second parameter value contained in the second message to a parameter value consistent with first data link protocol using a scale factor associated with the matched second parameter identifier; the second data link protocol being used by a module off-board the machine, and

sending a third message including the scaled first second parameter value consistent with the second data link protocol to the off-board module using the second data link protocol, and a fourth message including the scaled second parameter value consistent with the first data link protocol to the onboard module using the first data link protocol.

37. (Original) The method of claim 36, wherein the first data link protocol is a proprietary data link protocol.

38. (Original) The method of claim 36, wherein the second data link protocol is a non-proprietary protocol including one of a J1939 protocol, a CAN protocol, a MODBUS protocol, a serial standard data link protocol, and an Ethernet protocol.

39. (Currently amended) A system for exchanging information in a multi-protocol environment, the system comprising:

a translation table implemented in a memory device, the translation table including:

at least one parameter identifier,

a plurality of scale factors associated with the at least one parameter identifier, wherein each of the plurality of scale factors corresponds to a different data link protocol, and

a universal storage section for storing a parameter value associated with the at least one parameter identifier; and

a gateway residing onboard a machine and configured to access the translation table, wherein the gateway is configured to:

receives receive a first message from a module onboard the machine including a first parameter identifier and a first parameter value[[,]] via a first data link used by the onboard module, and a second message from a

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module off-board the machine including a second parameter identifier and a

second parameter value via a second data link used by the off-board module;

determines determine whether the first parameter identifier and the

second parameter identifier match matches the at least one parameter identifier

in the translation table[[,]];

when a match is found by the gateway, scales scale the first

parameter value to a second parameter value consistent compatible with [[a]] the

second data link protocol, and scale the second parameter value to a value

compatible with the first data link, using the scaled factor corresponding to the

matched parameter identifier; , the second data link protocol being used by a

module off-board the machine, and

outputs output a third message in the second data link protocol

containing the scaled first second parameter value compatible with the second

data link to the off-board module via [[a]] the second data link used by the off-

board module, and a fourth message containing the scaled second parameter

compatible with the first data link protocol to the on-board module via the first

data link.

40. (Original) The system of claim 39, wherein the first data link protocol is a

proprietary data link protocol.

41. (Original) The system of claim 39, wherein the first data link protocol is a non-proprietary protocol including one of a J1939 protocol, a CAN protocol, a MODBUS protocol, a serial standard data link protocol, and an Ethernet protocol.

42. (Original) The system of claim 39, wherein the second data link protocol is a non-proprietary protocol including one of a J1939 protocol, a CAN protocol, a MODBUS protocol, a serial standard data link protocol, and an Ethernet protocol.

43. (Canceled)

44. (Currently amended) A system for exchanging information between machines in a multi-protocol environment including a network of modules, the system comprising:

a source module onboard a first machine for sending a source message including content consistent with a first protocol used by the source module, the source module being coupled to a source data link that uses the first protocol;

a destination module onboard a second machine for receiving the source message, the destination module located at a distance from the source module that exceeds a transmission range of the first protocol;

a first gateway onboard the first machine and coupled to the source data link and to an intermediate data link communicatively connecting the first machine and the second machine, the intermediate data link using a second protocol, the first gateway being configured to:

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receive the message from the source data link in the first

protocol[[,]];

encapsulate the message within a transmission unit consistent with

the second protocol[[,]]; and

output the encapsulated message to the intermediate data link

using the second protocol; and

a second gateway onboard the second machine and coupled to the

intermediate data link and to the destination module, the second gateway being

configured to:

receive the encapsulated message from the intermediate data link;

extract the source message from the second protocol transmission

unit;

translate content of the source message to a format consistent with

a destination protocol different than the first protocol and used by a destination

data link coupled to the destination module, the translating including scaling a

first parameter value contained in the source message to a second parameter

value consistent with the destination protocol; and

route the translated message to the destination module over the

destination data link.

45. (Canceled)

46. (Currently amended) A computer-readable medium storing a computer-readable program which, when executed by a gateway onboard a machine, causes the gateway to perform a multi-protocol communication method, the method comprising:

receiving, by the gateway, a <u>first</u> message <u>from a module off-board the machine</u> in a first data link protocol used by [[a]] <u>the off-board</u> module ~~onboard the machine~~, the message including a parameter identifier;

matching, by the gateway, the parameter identifier with a corresponding parameter identifier included in a translation table associated with the gateway;

scaling a parameter value contained in the message to a second parameter value consistent with a second data link protocol using a scale factor associated with the matched parameter identifier, the second data link protocol being used by a module ~~off-board~~ <u>onboard</u> the machine; and

sending a <u>second</u> message including the second parameter value to the ~~off-board~~ <u>onboard</u> module ~~via~~ <u>in</u> the second data link protocol.

47. (Currently amended) A system for exchanging information <u>with a machine</u> in a multi-protocol environment, the system comprising:

a translation table implemented in a memory device, the translation table including:

at least one parameter identifier,

a plurality of scale factors associated with the at least one parameter identifier, wherein each of the plurality of scale factors corresponds to a different data link protocol, and

a universal storage section for storing a parameter value associated with the at least one parameter identifier; and

a gateway residing onboard [[a]] the machine and configured to access the translation table, wherein the gateway:

receives a first message from a module off-board the machine including a first parameter identifier and a first parameter value, via a first data link used by the off-board module,

determines whether the first parameter identifier matches the at least one parameter identifier in the translation table,

when a match is found by the gateway, scales the first parameter value to a second parameter value ~~consistent~~ compatible with a second data link ~~protocol~~ using a scale factor corresponding to the matched parameter identifier, the second data link ~~protocol~~ being used by a module onboard the machine, and

outputs a second message ~~in the second data link protocol~~ containing the second parameter value to the onboard module via [[a]] the second data link ~~used by the onboard module~~.

48. (New) The method of claim 35, further including controlling, by the onboard destination module, a function performed by the machine based on the second parameter value contained in the second message.

49. (New) The method of claim 36, further including controlling, by the onboard module, a function performed by the machine based on the scaled second parameter value consistent with the first data link protocol contained in the fourth message.

50. (New) The system of claim 39, wherein the onboard module is configured to control a function performed by the machine based on the scaled second parameter value compatible with the first data link contained in the fourth message.

51. (New) The system of claim 44, wherein the destination module is configured to control a function performed by the second machine based on the second parameter value contained in the translated message.

52. (New) The system of claim 46, wherein the onboard module is configured to control a function performed by the machine based on the second parameter value contained in the second message.

53. (New) The system of claim 47, wherein the onboard module is configured to control a function performed by the machine based on the second parameter value contained in the second message.